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New Clues on the Structure and Dynamics of Boxy/Peanut Bulges in Disk Galaxies

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We investigate here the importance of the bar-buckling instability in forming boxy/peanut-shaped bulges in disk galaxies. We briefly review bar-thickening mechanisms and present new long-slit emission line spectra of selected boxy/peanut galaxies. Our primary goal is to identify bars within the edge-on disks (see Kuijken & Merrifield 1995). The observations strongly support the bar-buckling mechanism for the formation of boxy/peanut bulges. But, they also raise many questions, particularly regarding the unusual behaviour of the emission line ratios in the barred region of the galaxies, and whether or not bar buckling can explain the boxy/peanut bulge in all systems. More detailed numerical simulations are needed to calculate the expected shape of the gaseous line-of-sight velocity distributions and the physical conditions in the ISM of those systems.